TITLE: APPARATUS FOR AND METHOD OF FORMING MULTICOLOR HALFTONE IMAGES
INVENTORS: Yasuhiko KISHIMOTO
DOCKET NO.: 1391.1073

FIG. 1

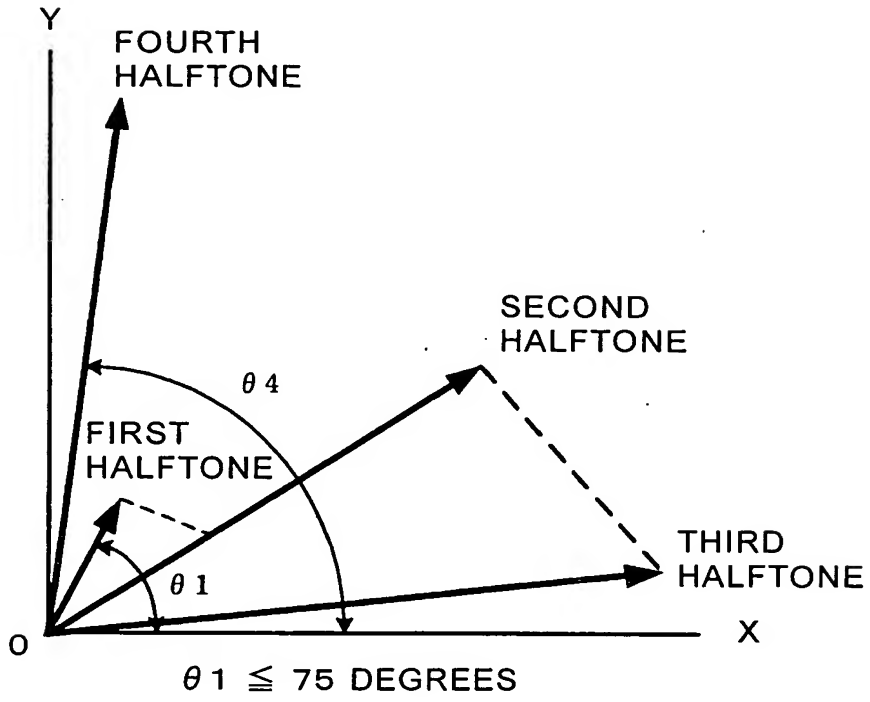

FIG. 2

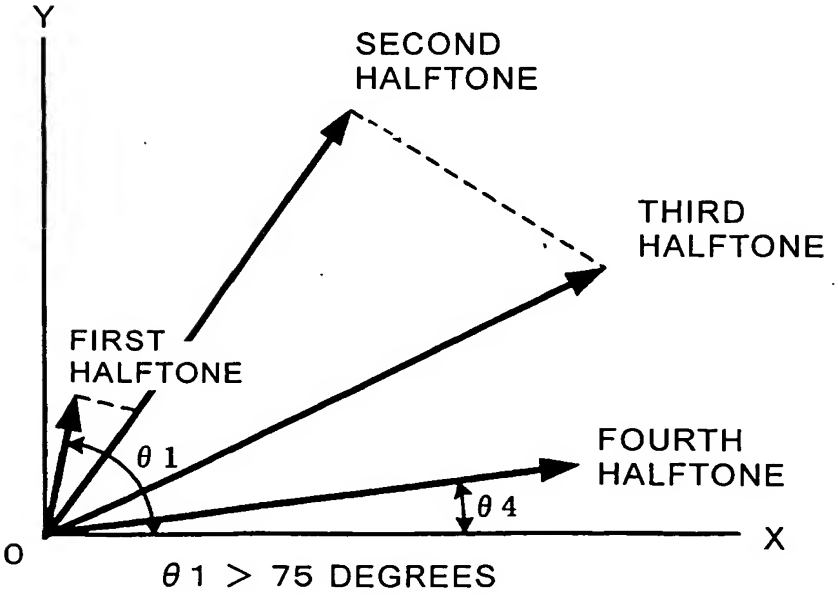

FIG. 3

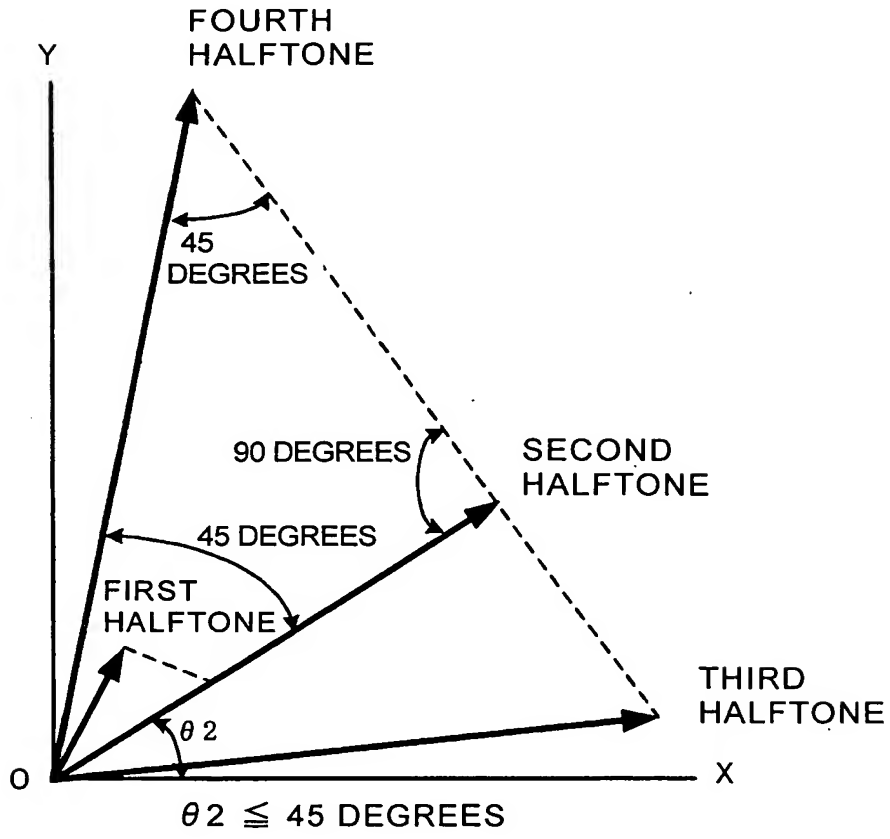
FOURTH
HALFTONE
Y
45
DEGREES
90 DEGREES
SECOND
HALFTONE
45 DEGREES
FIRST
HALFTONE
THIRD
HALFTONE
θ 2
O
X
θ 2 ≦ 45 DEGREES

FIG. 4

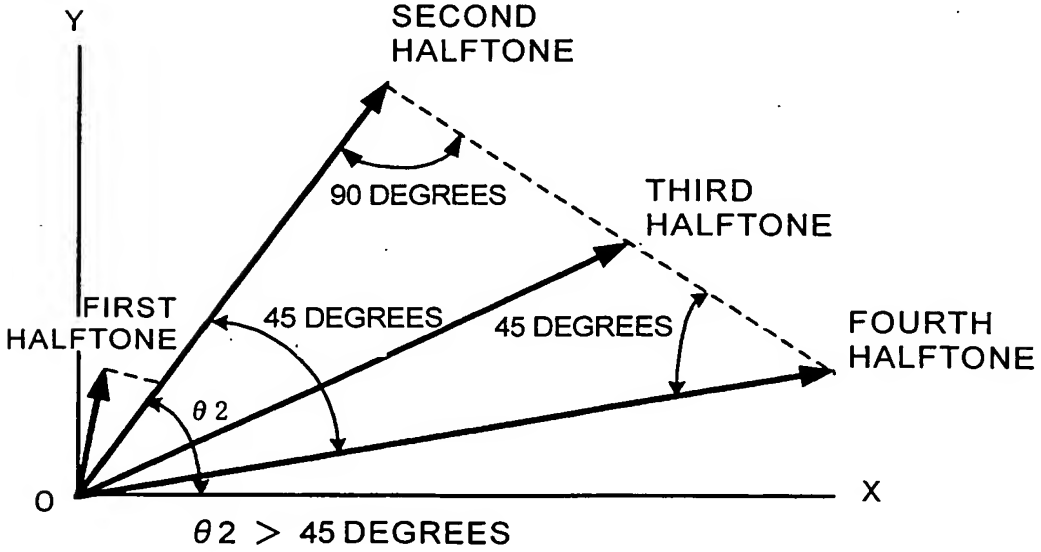
Y
SECOND
HALFTONE
90 DEGREES
THIRD
HALFTONE
FIRST
HALFTONE
45 DEGREES
45 DEGREES
FOURTH
HALFTONE
θ 2
O
X
θ 2 > 45 DEGREES

FIG. 5

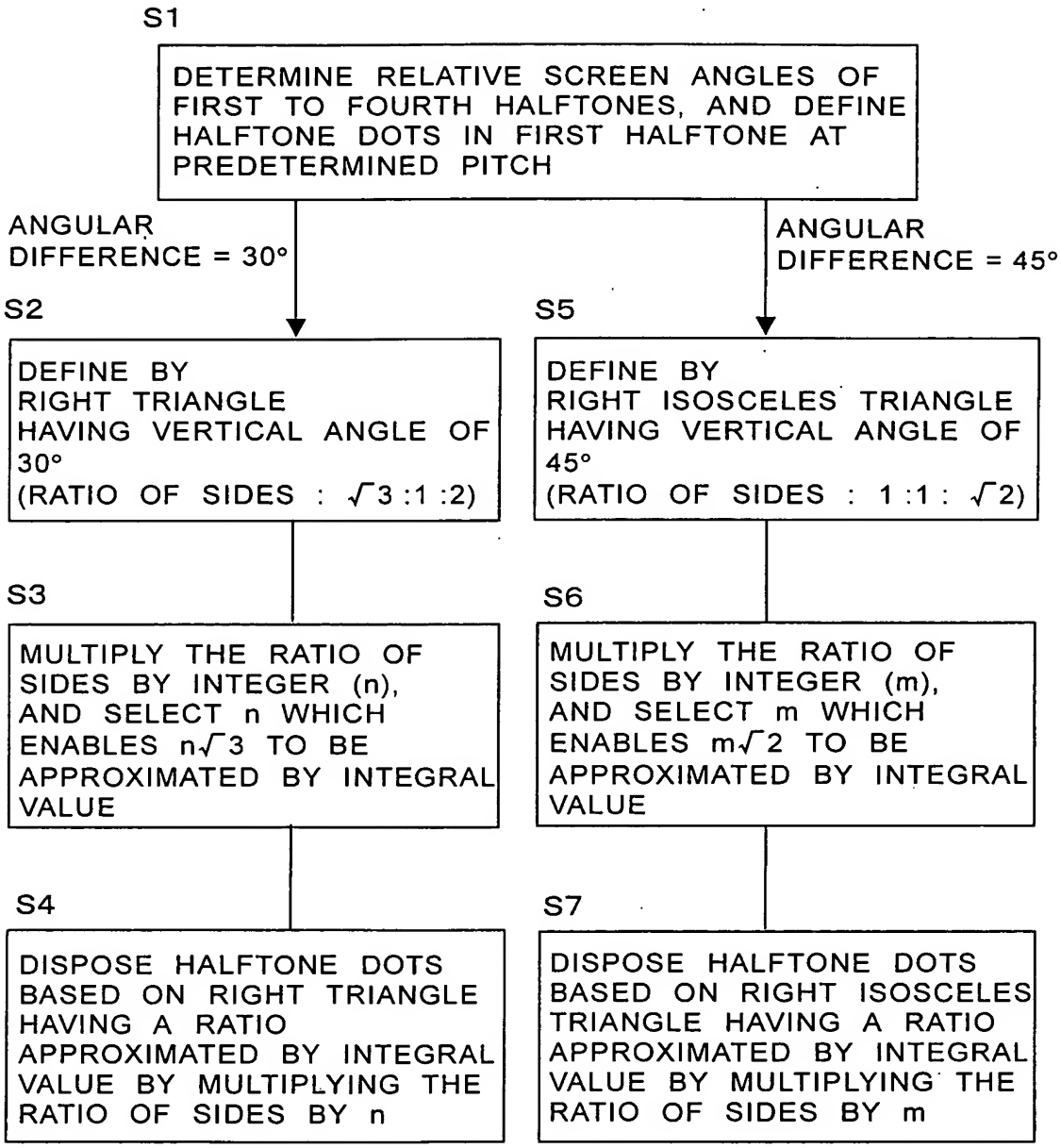
S1
DETERMINE RELATIVE SCREEN ANGLES OF FIRST TO FOURTH HALFTONES, AND DEFINE HALFTONE DOTS IN FIRST HALFTONE AT PREDETERMINED PITCH
ANGULAR DIFFERENCE = 30°
ANGULAR DIFFERENCE = 45°
S2
DEFINE BY RIGHT TRIANGLE HAVING VERTICAL ANGLE OF 30° (RATIO OF SIDES : √3 :1 :2)
S5
DEFINE BY RIGHT ISOSCELES TRIANGLE HAVING VERTICAL ANGLE OF 45° (RATIO OF SIDES : 1 :1 : √2)
S3
MULTIPLY THE RATIO OF SIDES BY INTEGER (n), AND SELECT n WHICH ENABLES n√3 TO BE APPROXIMATED BY INTEGRAL VALUE
S6
MULTIPLY THE RATIO OF SIDES BY INTEGER (m), AND SELECT m WHICH ENABLES m√2 TO BE APPROXIMATED BY INTEGRAL VALUE
S4
DISPOSE HALFTONE DOTS BASED ON RIGHT TRIANGLE HAVING A RATIO APPROXIMATED BY INTEGRAL VALUE BY MULTIPLYING THE RATIO OF SIDES BY n
S7
DISPOSE HALFTONE DOTS BASED ON RIGHT ISOSCELES TRIANGLE HAVING A RATIO APPROXIMATED BY INTEGRAL VALUE BY MULTIPLYING THE RATIO OF SIDES BY m

FIG. 6

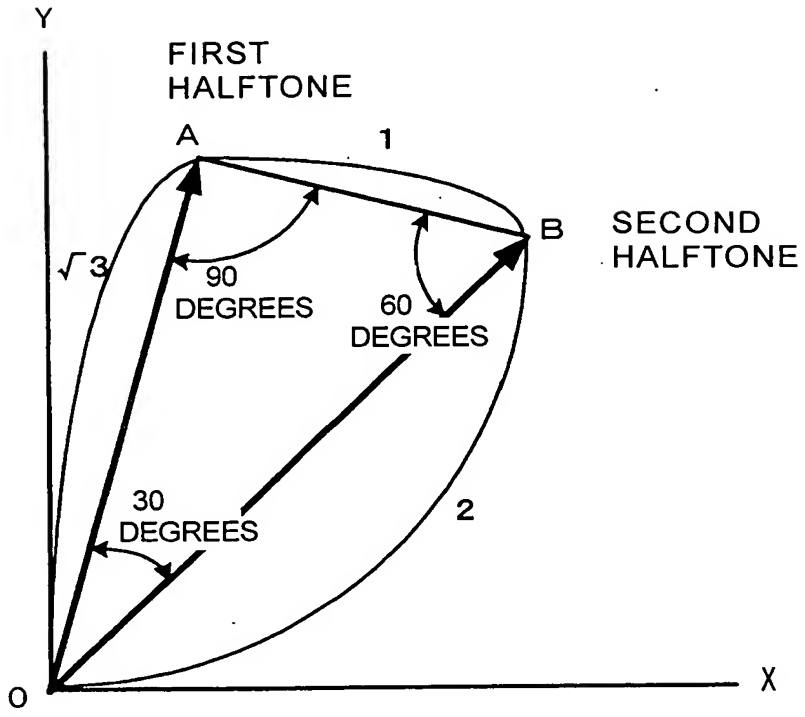
Y
FIRST
HALFTONE
A
1
B
SECOND
HALFTONE
√3
90
DEGREES
60
DEGREES
30
DEGREES
2
O
X

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FIG. 7

n	$n \times \sqrt{3}$
1	1.732051
2	3.464102
3	5.196152
4	6.928203 (≒7 ERROR 0.07)
5	8.660254
6	10.3923
7	12.12436
8	13.85641
9	15.58846
10	17.32051
11	19.05256 (≒19 ERROR 0.05)
12	20.78461
13	22.51666
14	24.24871
15	25.98076 (≒26 ERROR 0.02)
16	27.71281
17	29.44486
18	31.17691
19	32.90897
20	34.64102

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FIG. 8

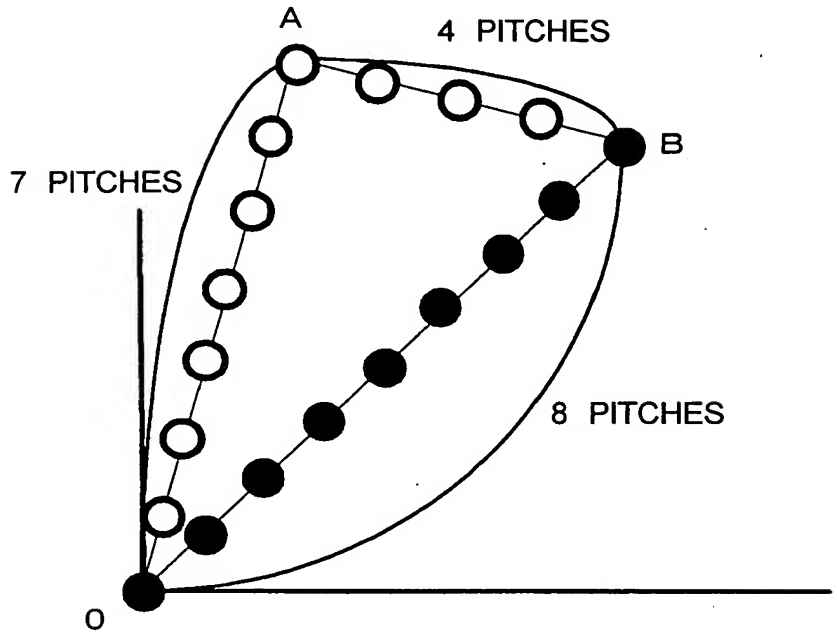
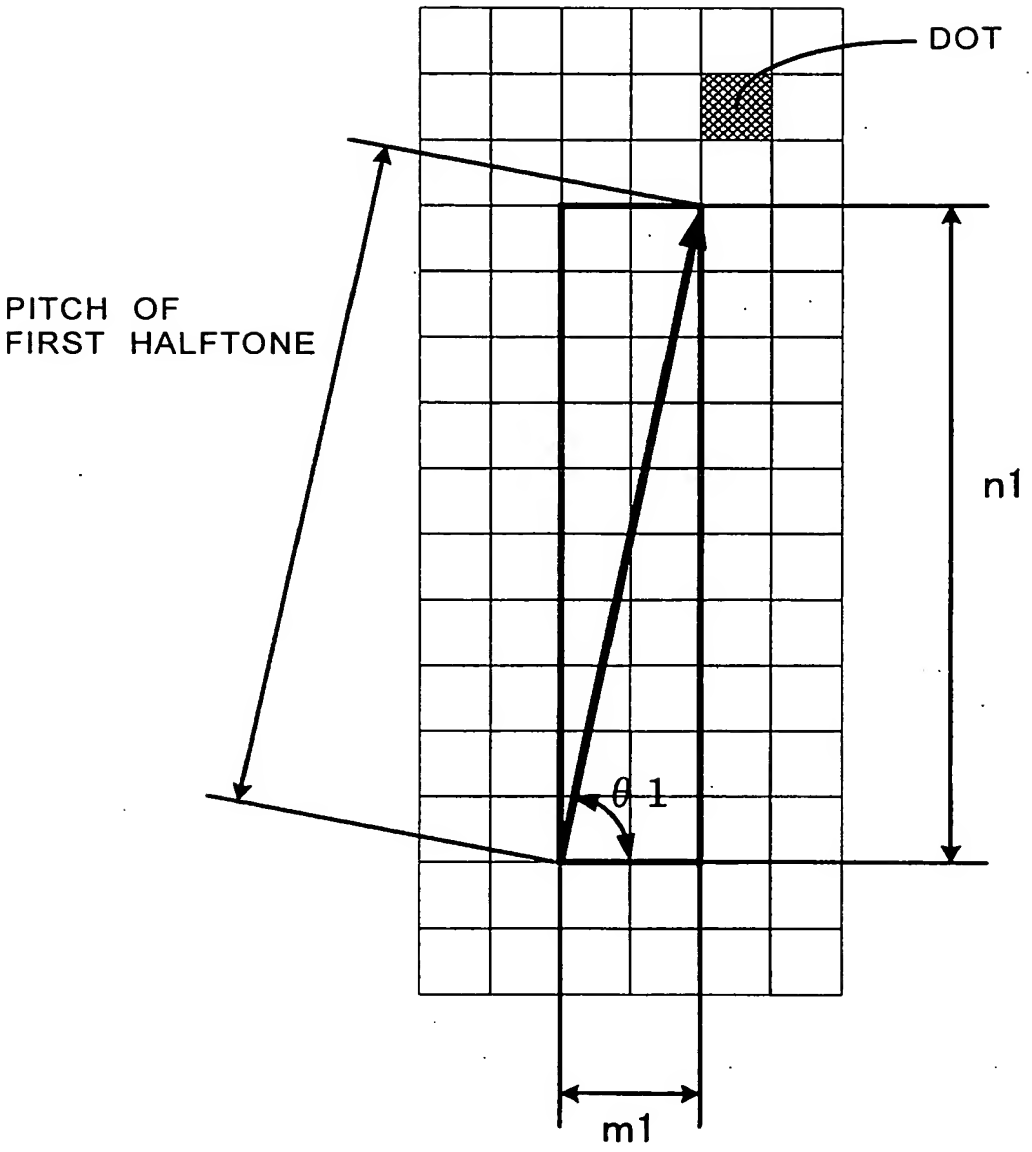


FIG. 9



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INVENTORS: Yasuhiko KISHIMOTO
DOCKET NO.: 1391.1073

FIG. 10

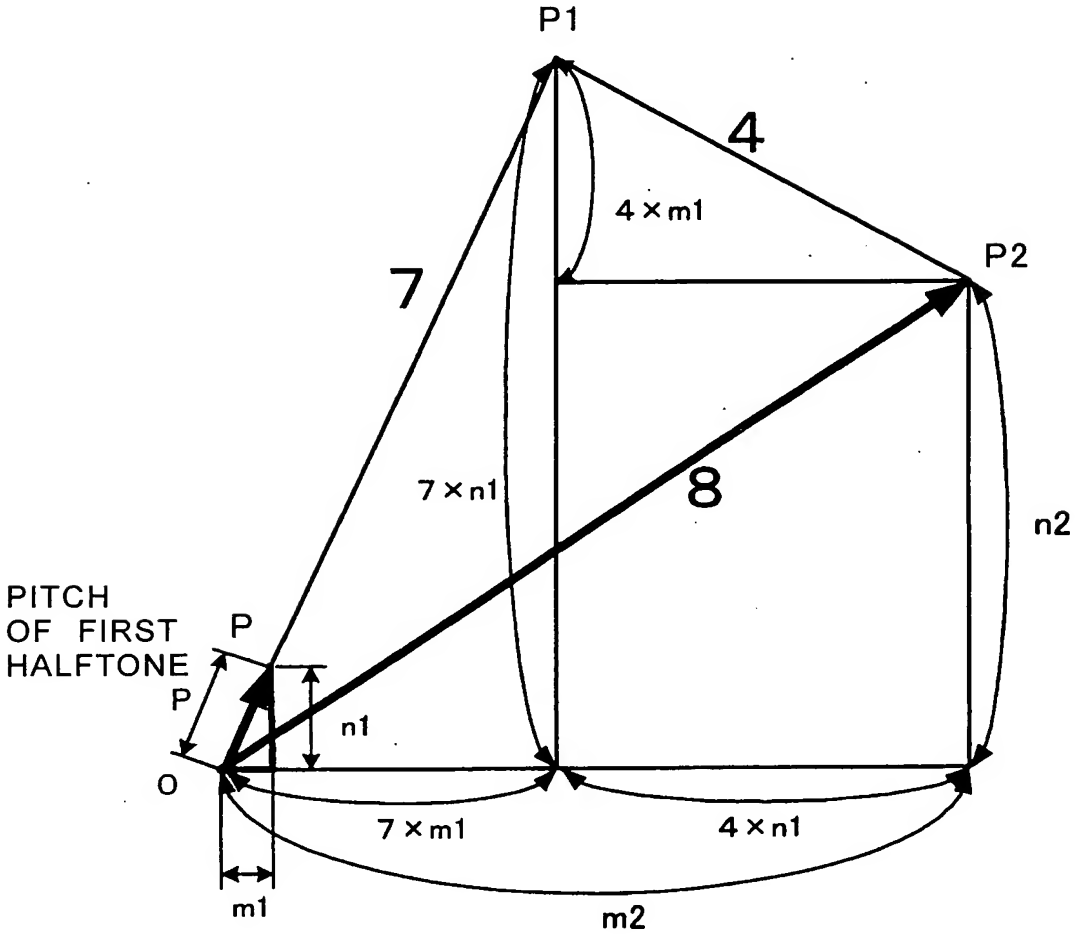


FIG. 11

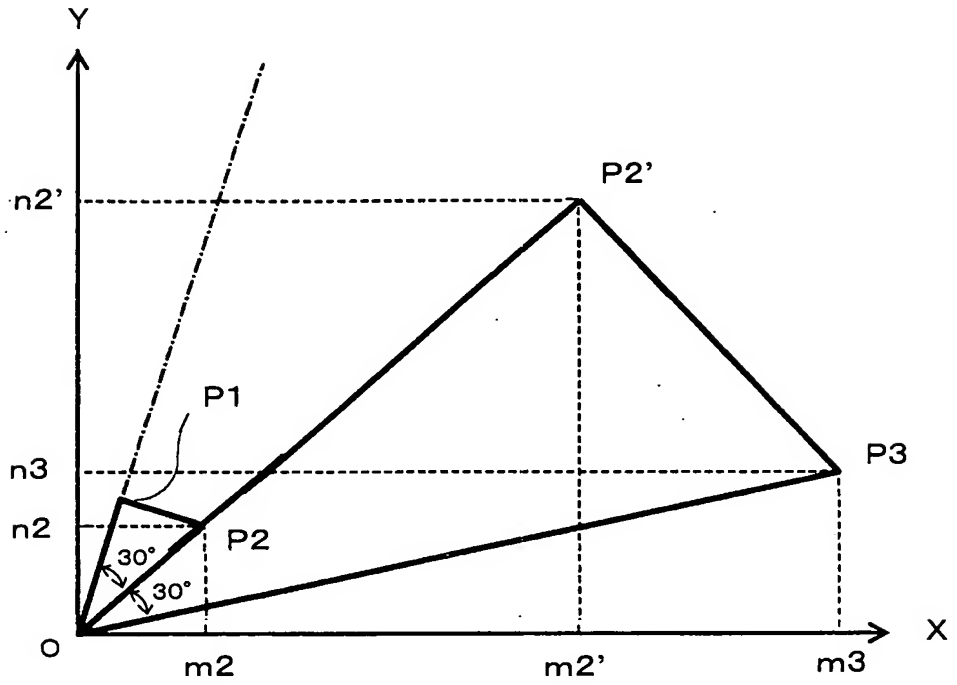


FIG.12

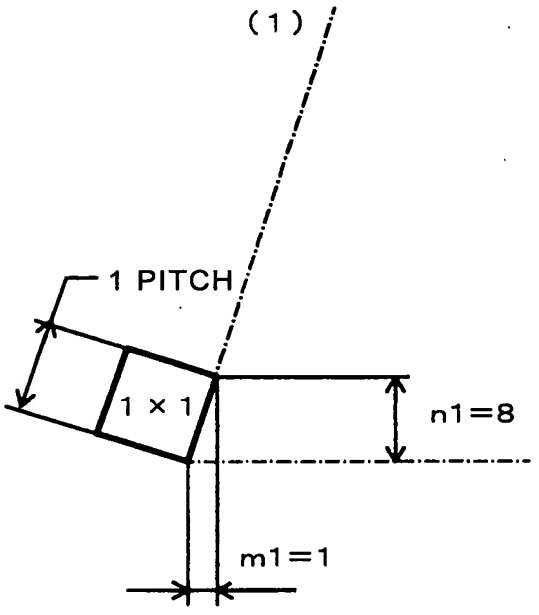


FIG.13

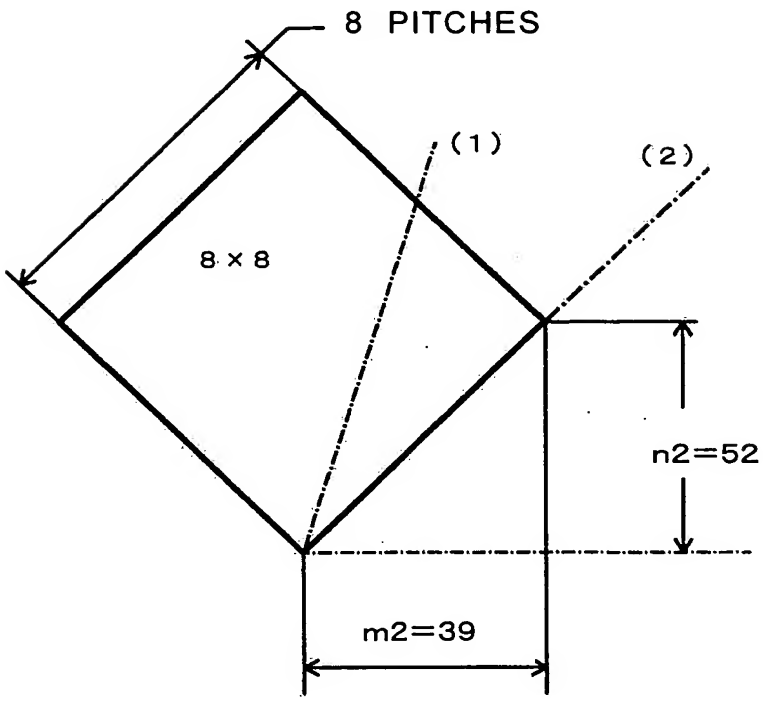


FIG. 14

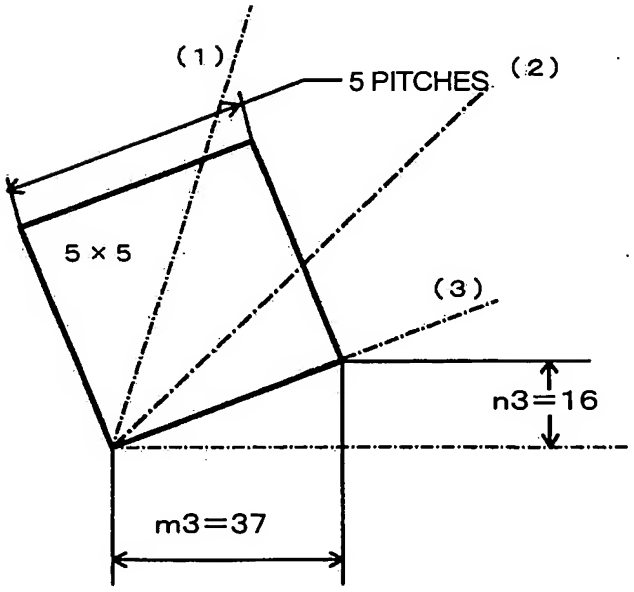


FIG. 15

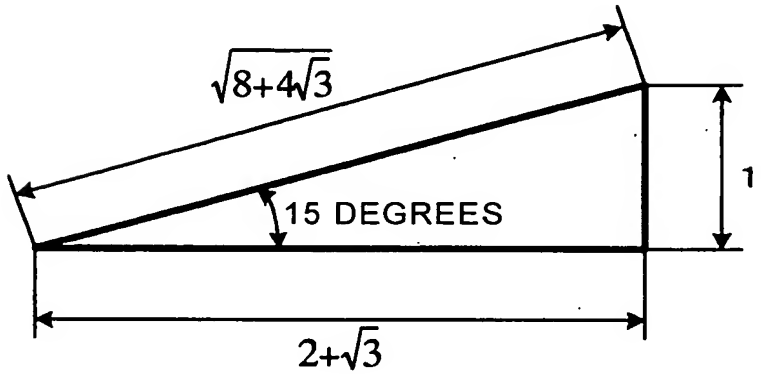


FIG. 16

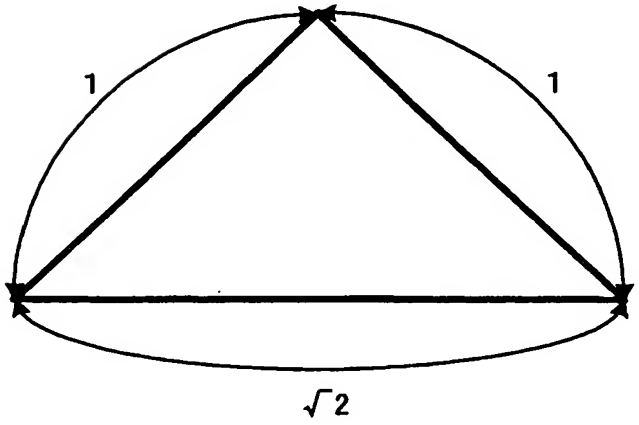
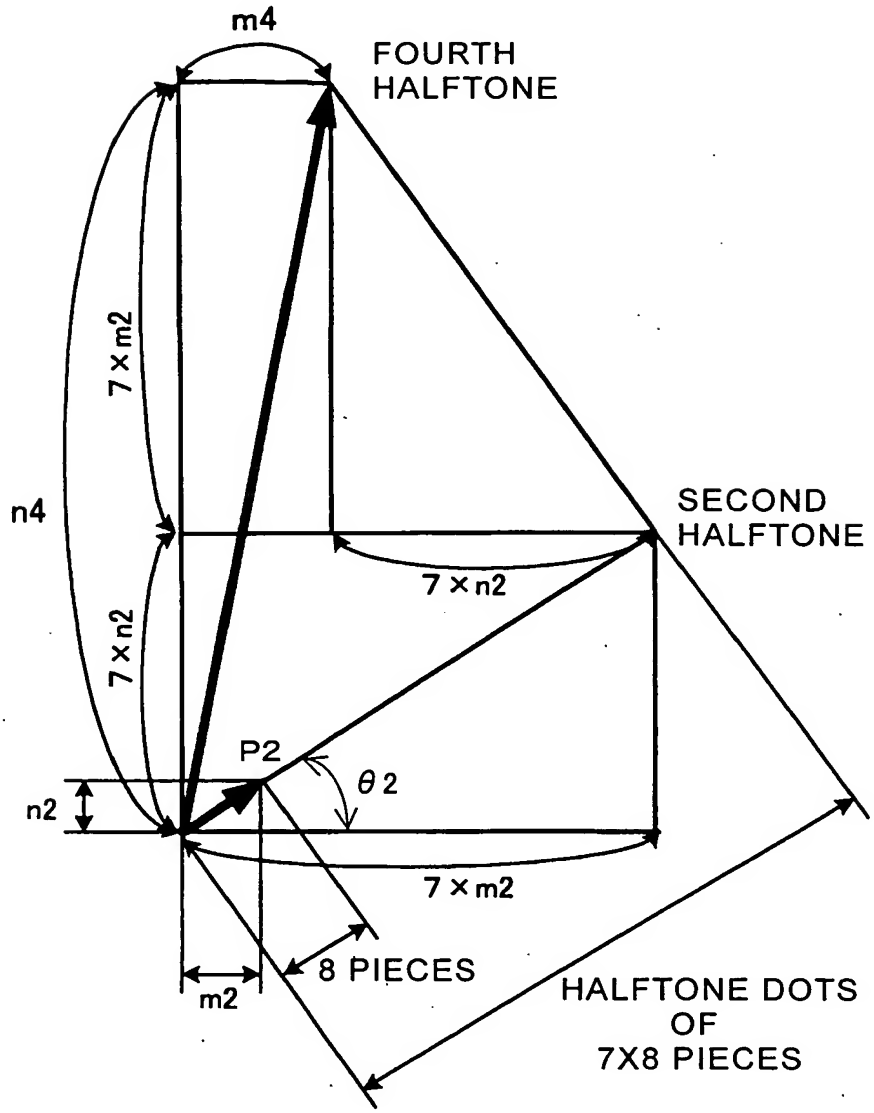


FIG. 17

m	$m \times \sqrt{2}$
1	1.414214
2	2.828427
3	4.242641
4	5.656854
5	7.071068 (≒7 ERROR 0.071)
6	8.485281
7	9.899495 (≒10 ERROR 0.100)
8	11.31371
9	12.72792
10	14.14214
11	15.55635
12	16.97056 (≒17 ERROR 0.030)
13	18.38478
14	19.79899
15	21.2132
16	22.62742
17	24.04163
18	25.45584
19	26.87006
20	28.28427

FIG. 18


m4
FOURTH HALFTONE
7 × m2
n4
SECOND HALFTONE
7 × n2
7 × n2
P2
θ 2
n2
7 × m2
8 PIECES
m2
HALFTONE DOTS OF 7X8 PIECES

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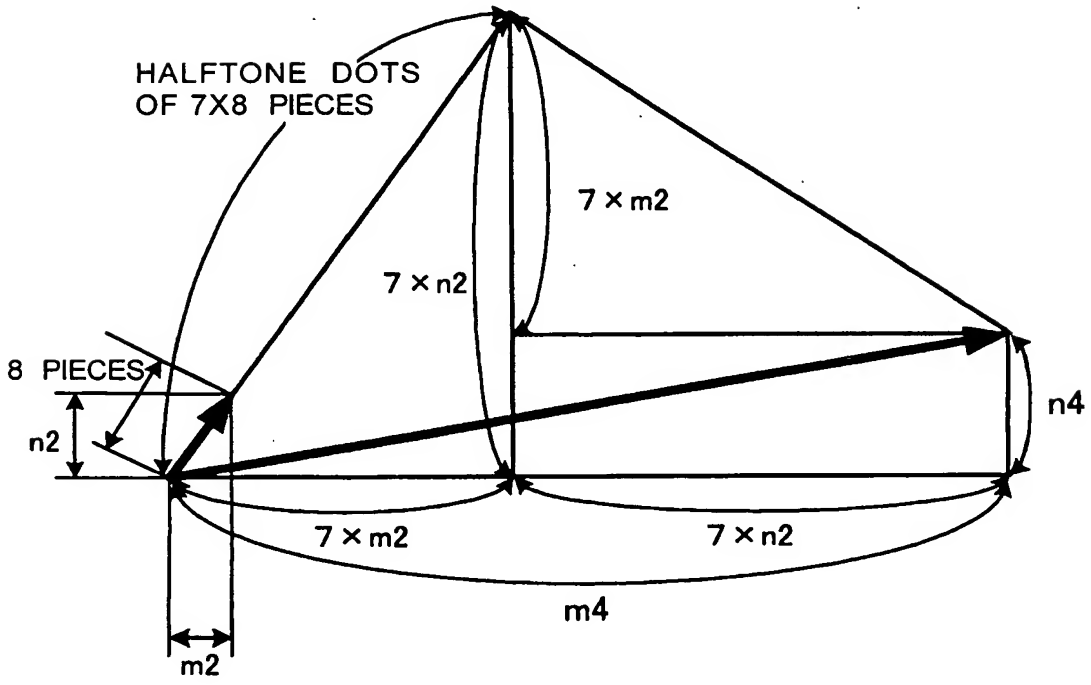
INVENTORS: Yasuhiko KISHIMOTO
DOCKET NO.: 1391.1073

FIG. 19



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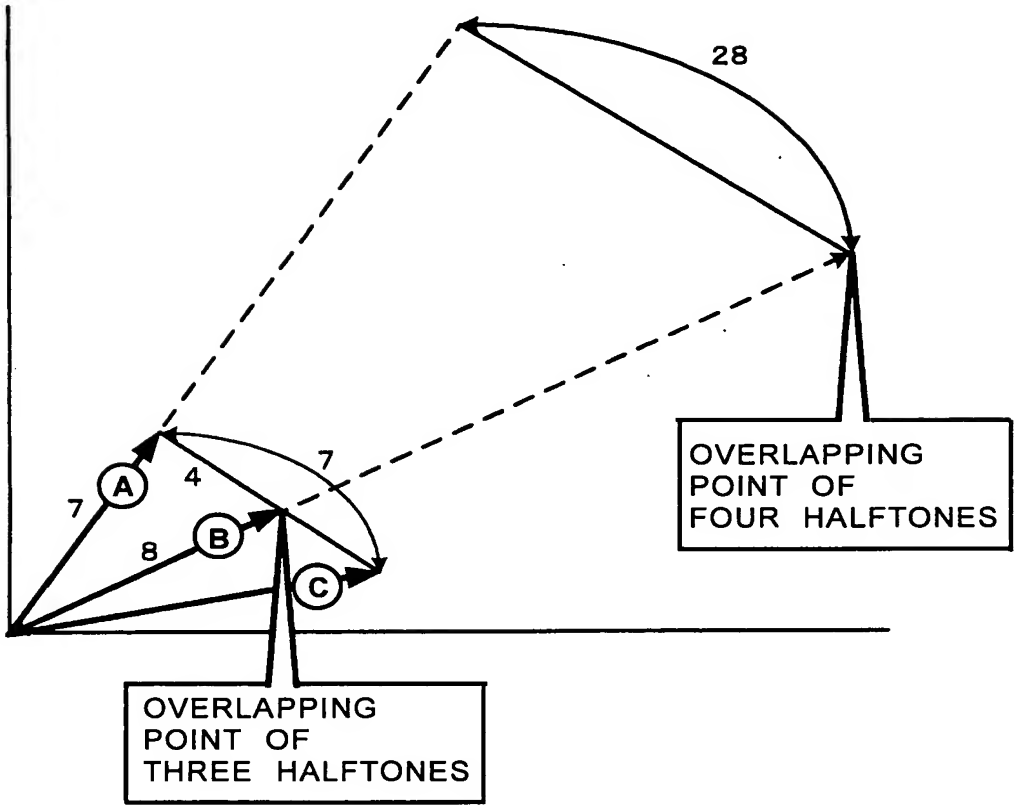
INVENTORS: Yasuhiko KISHIMOTO
DOCKET NO.: 1391.1073

FIG. 20



Ⓐ : SECOND HALFTONE

Ⓑ : THIRD HALFTONE

Ⓒ : FOURTH HALFTONE

FIG. 21

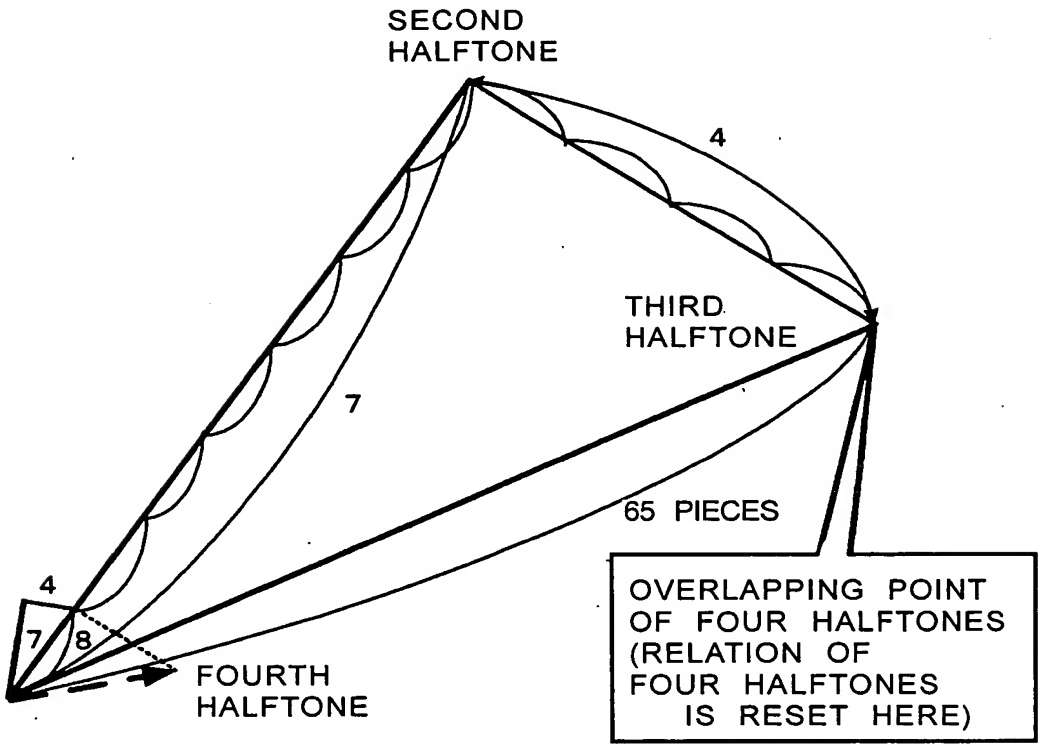

SECOND
HALFTONE
4
THIRD
HALFTONE
7
65 PIECES
4
7
8
FOURTH
HALFTONE
OVERLAPPING POINT
OF FOUR HALFTONES
(RELATION OF
FOUR HALFTONES
IS RESET HERE)

FIG. 22(a)

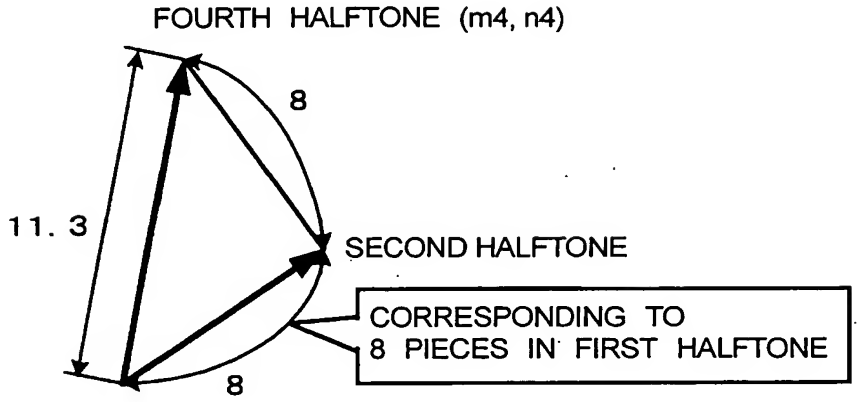


FIG. 22(b)

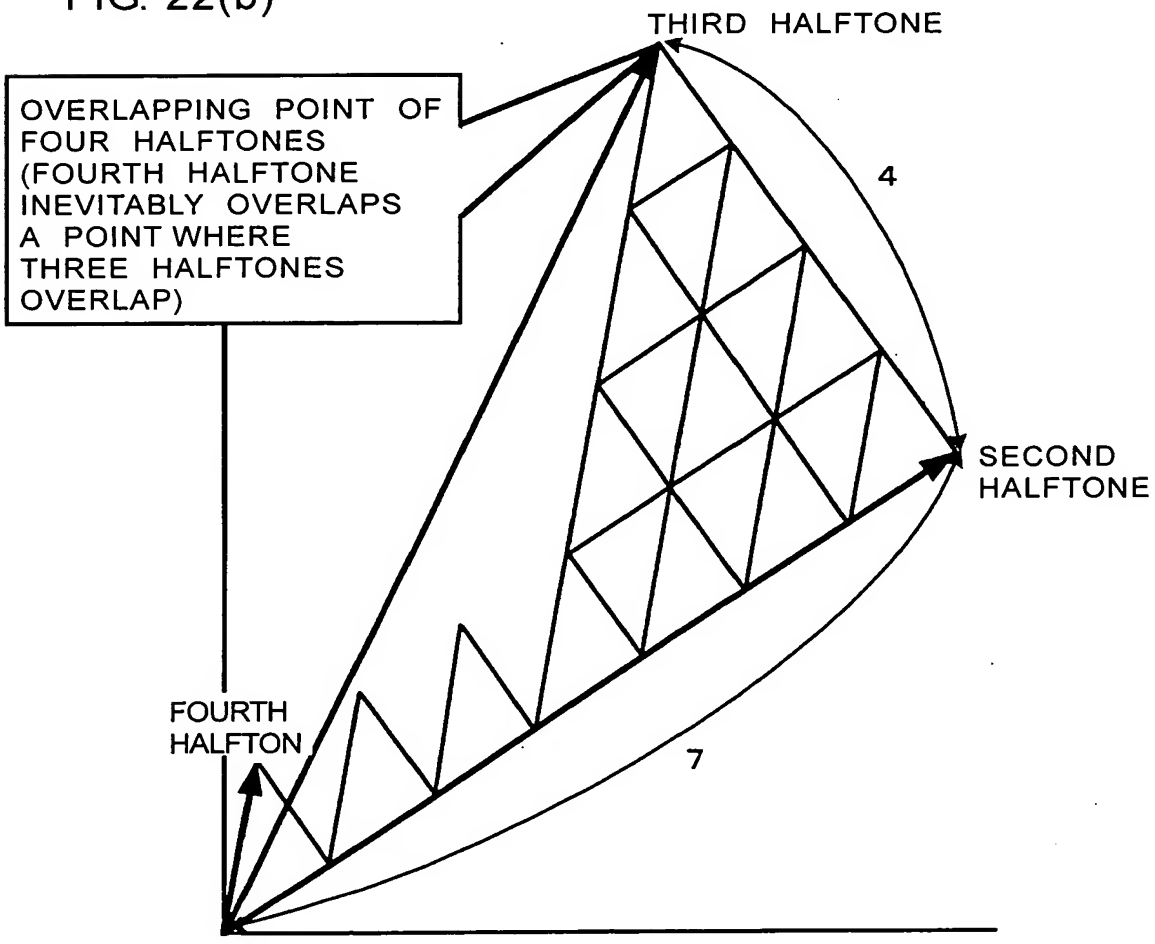


FIG. 23(a)

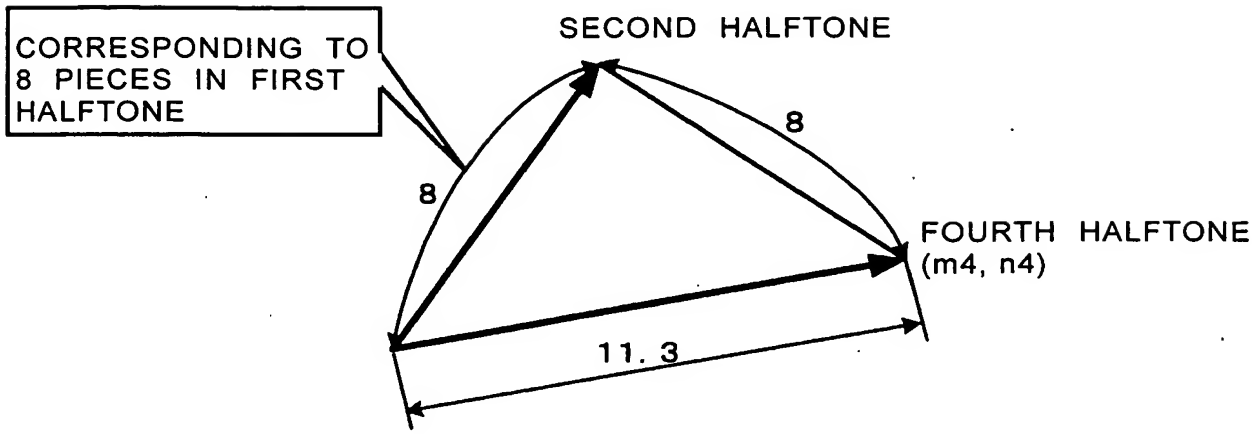


FIG. 23(b)

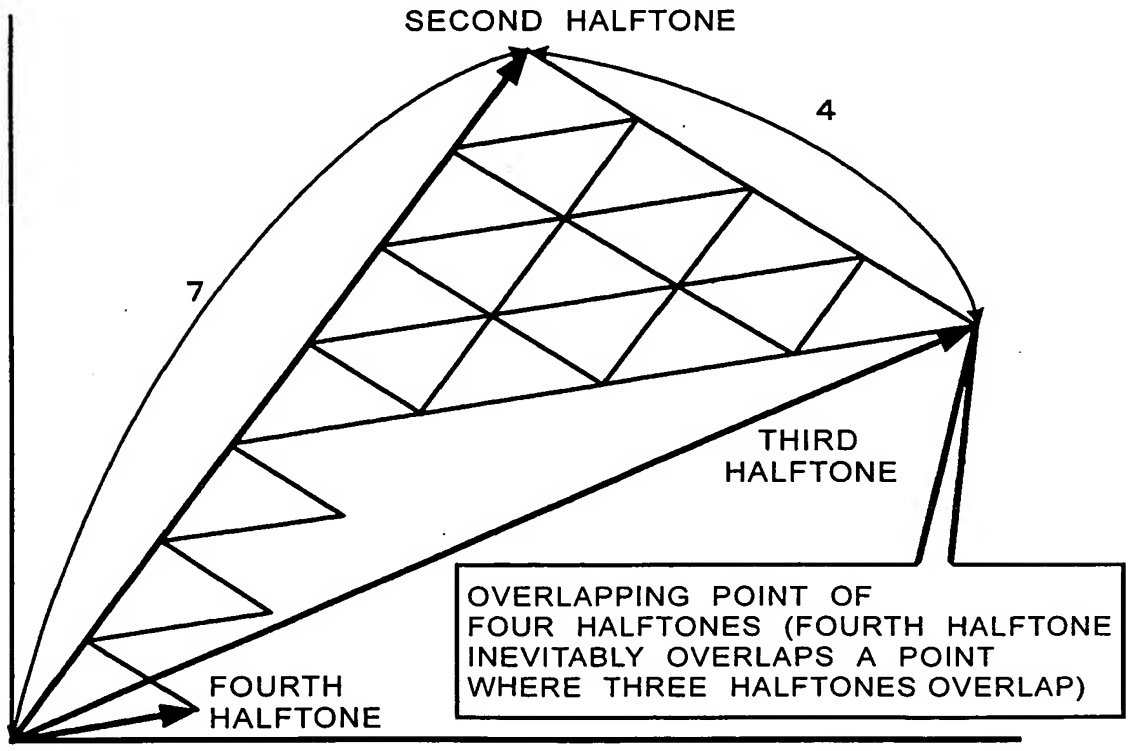


FIG. 24(a)

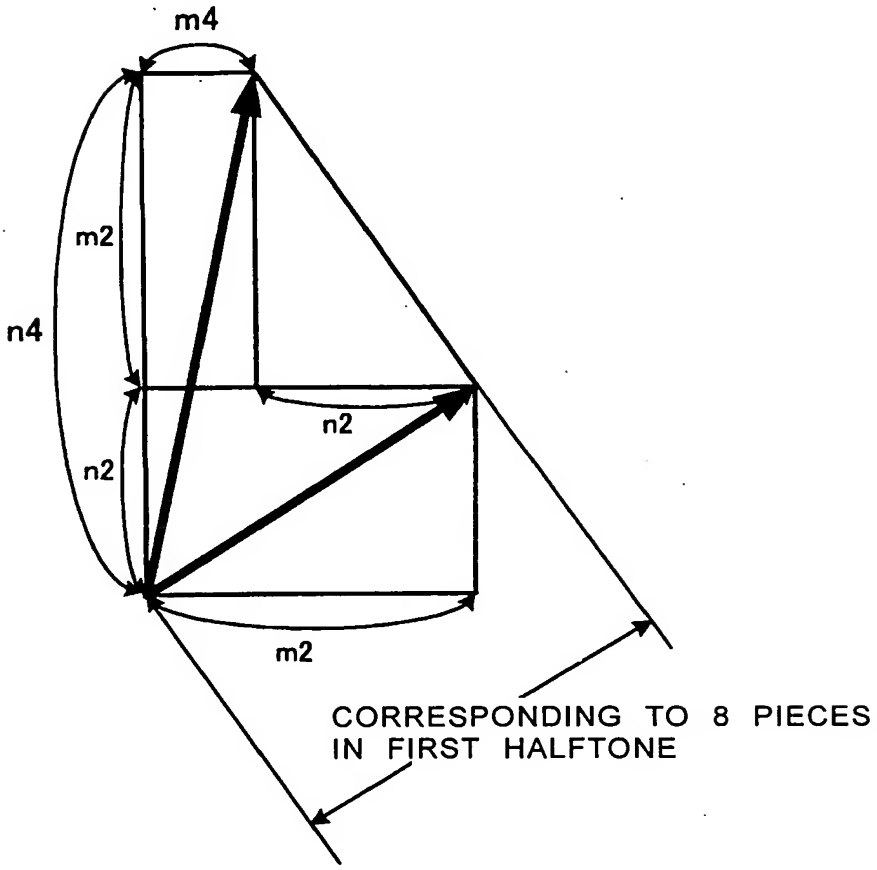


FIG. 24(b)

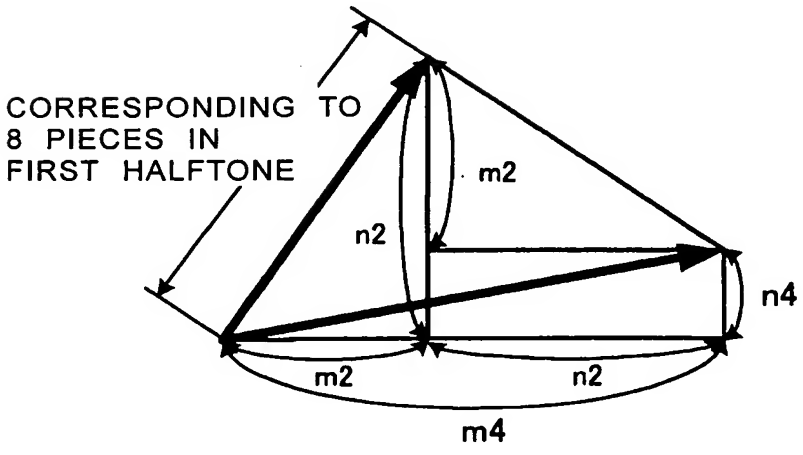


FIG. 25(a)

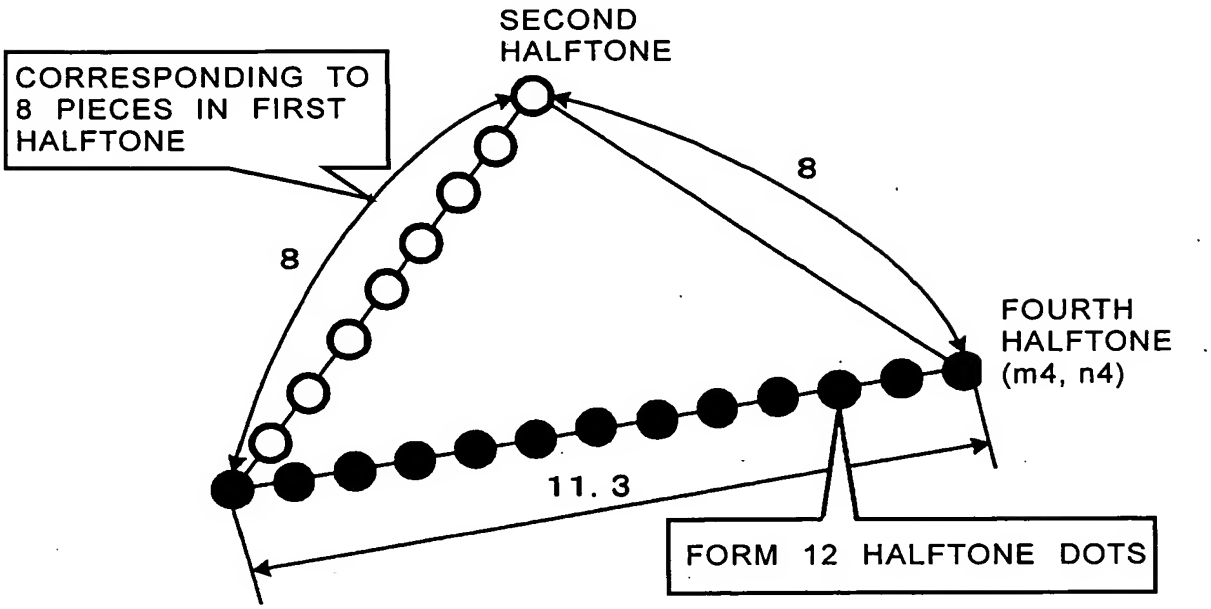


FIG. 25(b)

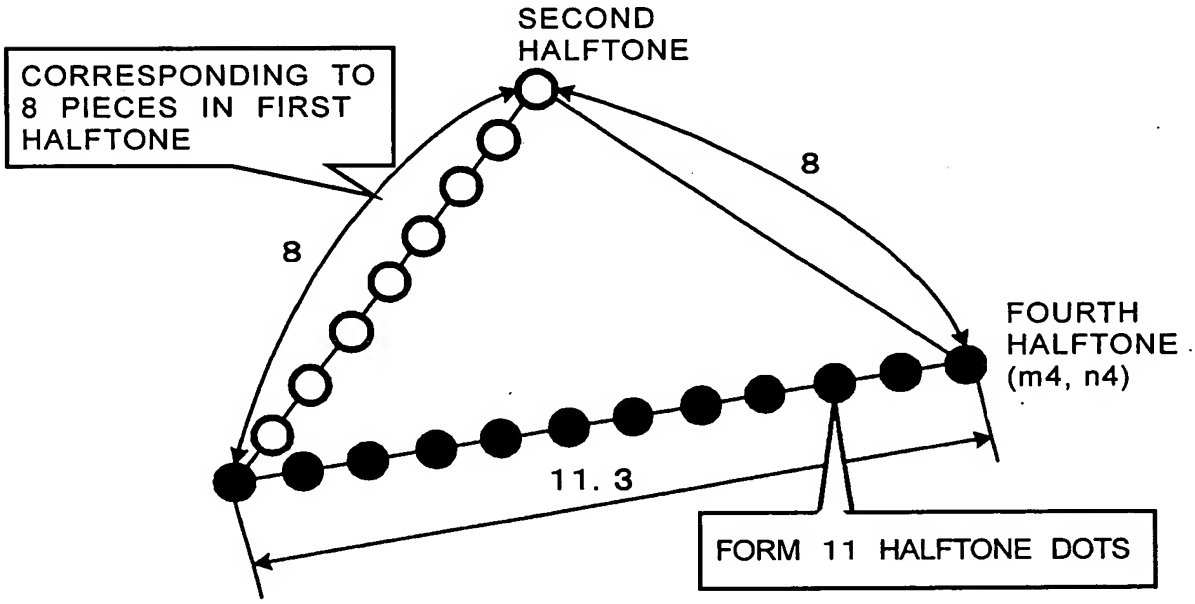


FIG. 26

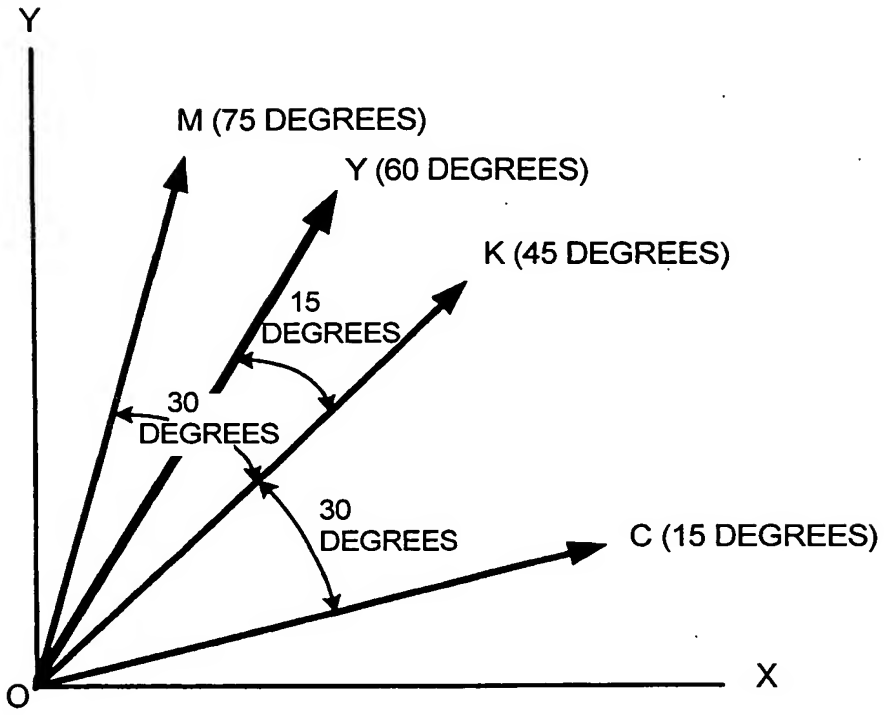

Y
M (75 DEGREES)
Y (60 DEGREES)
K (45 DEGREES)
15
DEGREES
30
DEGREES
30
DEGREES
C (15 DEGREES)
O
X

FIG. 27(a)

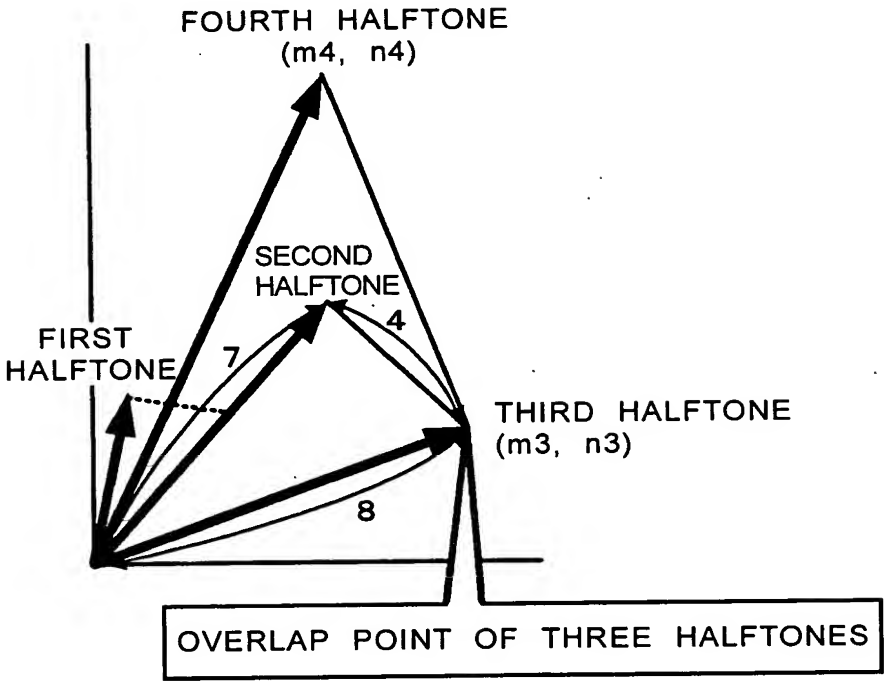


FIG. 27(b)

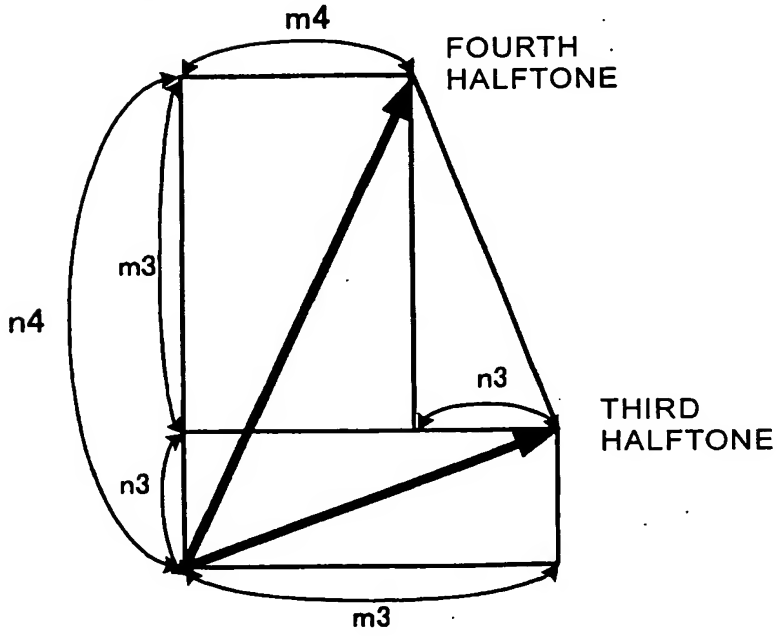


FIG. 28

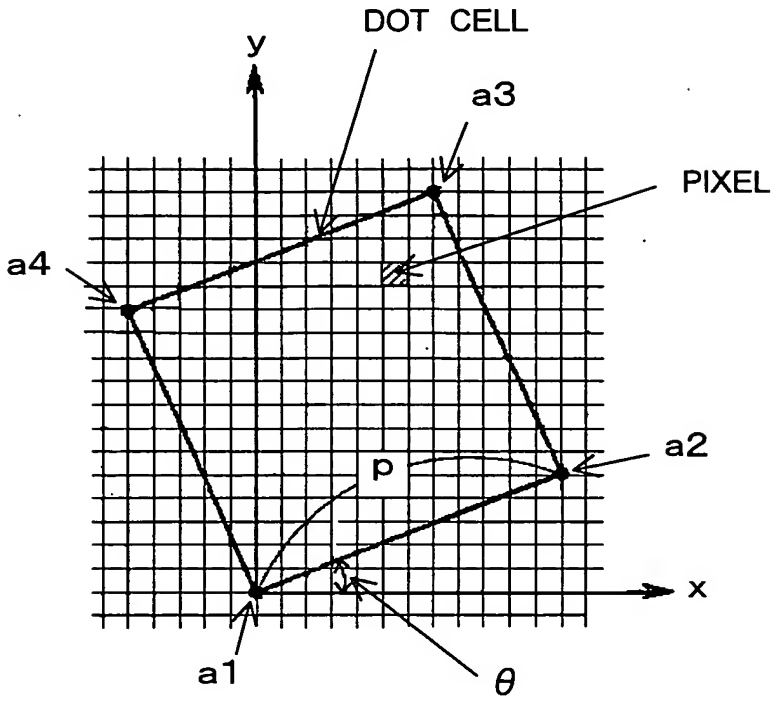

DOT CELL
y
a3
PIXEL
a4
a2
p
x
a1
θ

FIG. 29

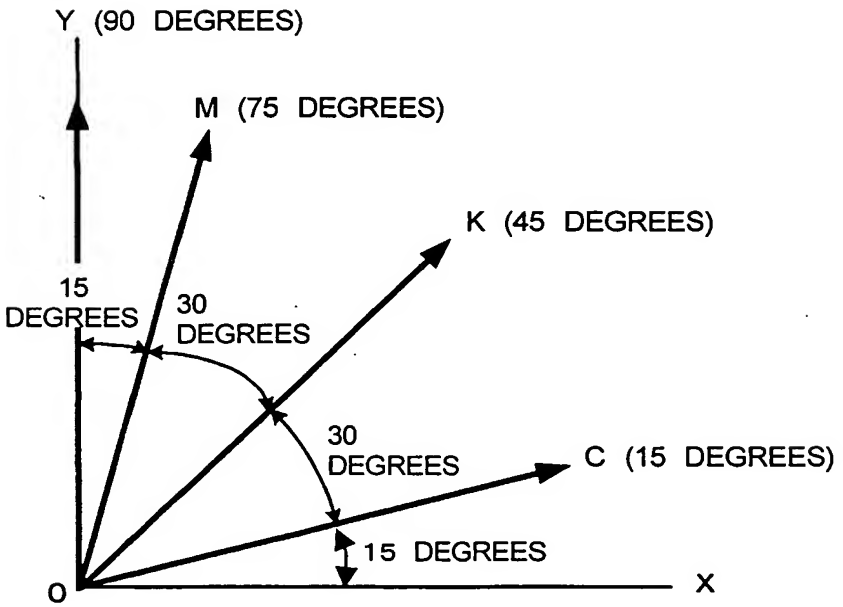

Y (90 DEGREES)
M (75 DEGREES)
K (45 DEGREES)
15
DEGREES
30
DEGREES
30
DEGREES
C (15 DEGREES)
15 DEGREES
O
X

FIG. 30

SUPER CELL

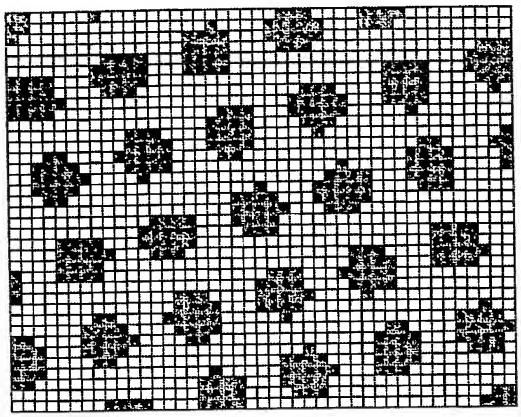


FIG. 31(A)

JOINT PORTION BETWEEN SUPER CELLS

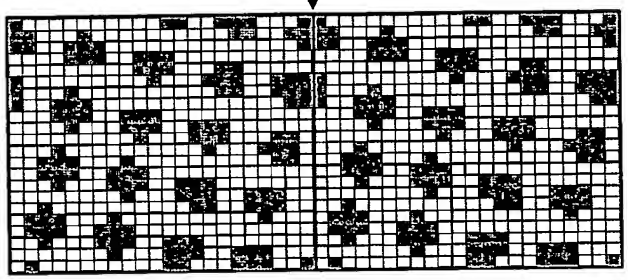


FIG. 31(B)

JOINT PORTION BETWEEN SUPER CELLS

JOINT PORTION
BETWEEN
SUPER CELLS

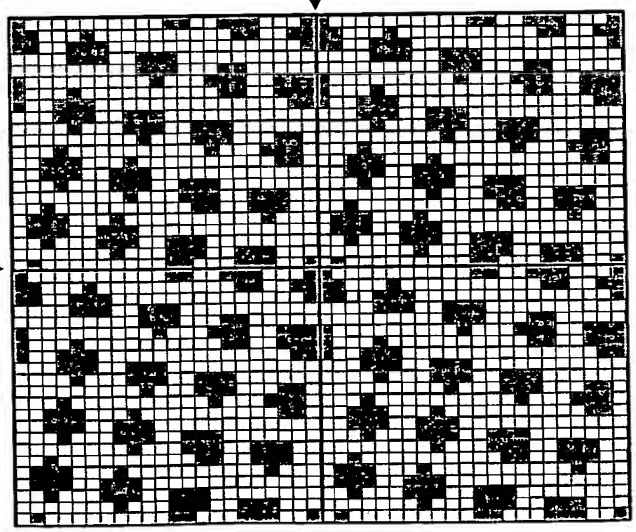


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FIG. 32